
A New Species of Deciduous Azalea (*Rhododendron* section *Pentanthera*; Ericaceae) from South Carolina

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ABSTRACT. A new species of deciduous azalea, *Rhododendron eastmanii*, has been discovered in South Carolina, U.S.A. This azalea can be distinguished from the other members of *Rhododendron* sect. *Pentanthera* by its distinctive morphology, flowering time, and fragrance. It is presently known only from Orangeburg and Richland counties.

A new species of *Rhododendron* for South Carolina is recognized based on the diagnosability criterion of Davis and Nixon (1992). The deciduous leaves, narrow corolla tube, and 5 declinate stamens strongly exerted from the corolla place this species in *Rhododendron* sect. *Pentanthera* G. Don. Within the section, 14 species are currently recognized in North America (Kron, 1993). Known from only two localities in South Carolina, *R. eastmanii* presently consists of approximately 500 individuals at each site.

***Rhododendron eastmanii* Kron & Creel, sp. nov.**

TYPE: U.S.A. South Carolina: Orangeburg Co., Santee State Park along Limestone Sink hiking trail, 17 May 1993, *Kron 3023* (holotype, WFU; isotypes, MO, USCH, WFU). Figures 1, 2.

Species haec a *Rhododendron arborescens* (Pursh) Torrey differt corolla supra macula aurea, perulis gemmis marginibus glandulosis, ramunculis dense pubescentibus, et floribus fragrantibus.

Shrub or small tree to 5 m tall, non-rhizomatous; young twigs usually reddish brown, densely covered with unicellular and multicellular eglandular hairs. Vegetative bud scales glabrous abaxially; margin unicellular-ciliate. Leaf blade membranaceous, ovate or obovate to elliptic, 4.3–7.1 × 1.8–2.9 cm; base acute to oblique; apex acute to obtuse, mucronate; adaxial surface sparsely to densely covered with unicellular hairs, the midvein densely covered

with unicellular hairs, multicellular eglandular hairs sparsely scattered on adaxial surface; abaxial surface moderately to densely covered with unicellular hairs and multicellular eglandular hairs, the midvein densely covered with unicellular hairs and multicellular eglandular hairs, 2° veins occasionally with multicellular eglandular hairs; margin entire, ciliate with multicellular eglandular hairs; petioles 0.25–0.70 cm long, densely covered with unicellular hairs and sparsely to densely covered with multicellular eglandular hairs. Flower bud scales chestnut brown; abaxial surface glabrous; margin unicellular-ciliate near apex, glandular along the lower 2/3 of margins. Flowers appearing after the leaves have expanded; inflorescence a shortened raceme of 5–9 flowers. Pedicels 0.5–1.1 cm long, densely covered with unicellular hairs and sparsely to densely covered with multicellular eglandular hairs, occasionally with multicellular glandular hairs. Sepals 0.05–0.1 cm long, often varying in length on the same flower; margins setose with multicellular eglandular hairs; abaxial surface sparsely to densely covered with unicellular hairs and multicellular eglandular hairs, occasionally with a few weakly glandular multicellular hairs. Corolla white with a yellow blotch on the upper corolla lobe and pink-tinged lobes on newly opened flowers, fragrance strong, fresh, and sweet, the tube longer than the limb and gradually expanding into it; upper corolla lobe 0.9–1.7 × 0.8–1.6 cm; lateral lobes 1.1–2.5 × 0.5–1.1 cm; corolla tube 1.3–2.5 cm long, 0.25–0.35 cm wide at base; outer surface of corolla densely covered with unicellular hairs and sparsely to densely covered with multicellular gland-tipped hairs, the glands usually weakly developed; inner surface of corolla densely covered with unicellular hairs. Stamens 4.5–6.7 cm long, with dense flattened unicellular hairs on proximal 2.3–2.7 cm of filament, exerted 2.2–3.5 cm be-

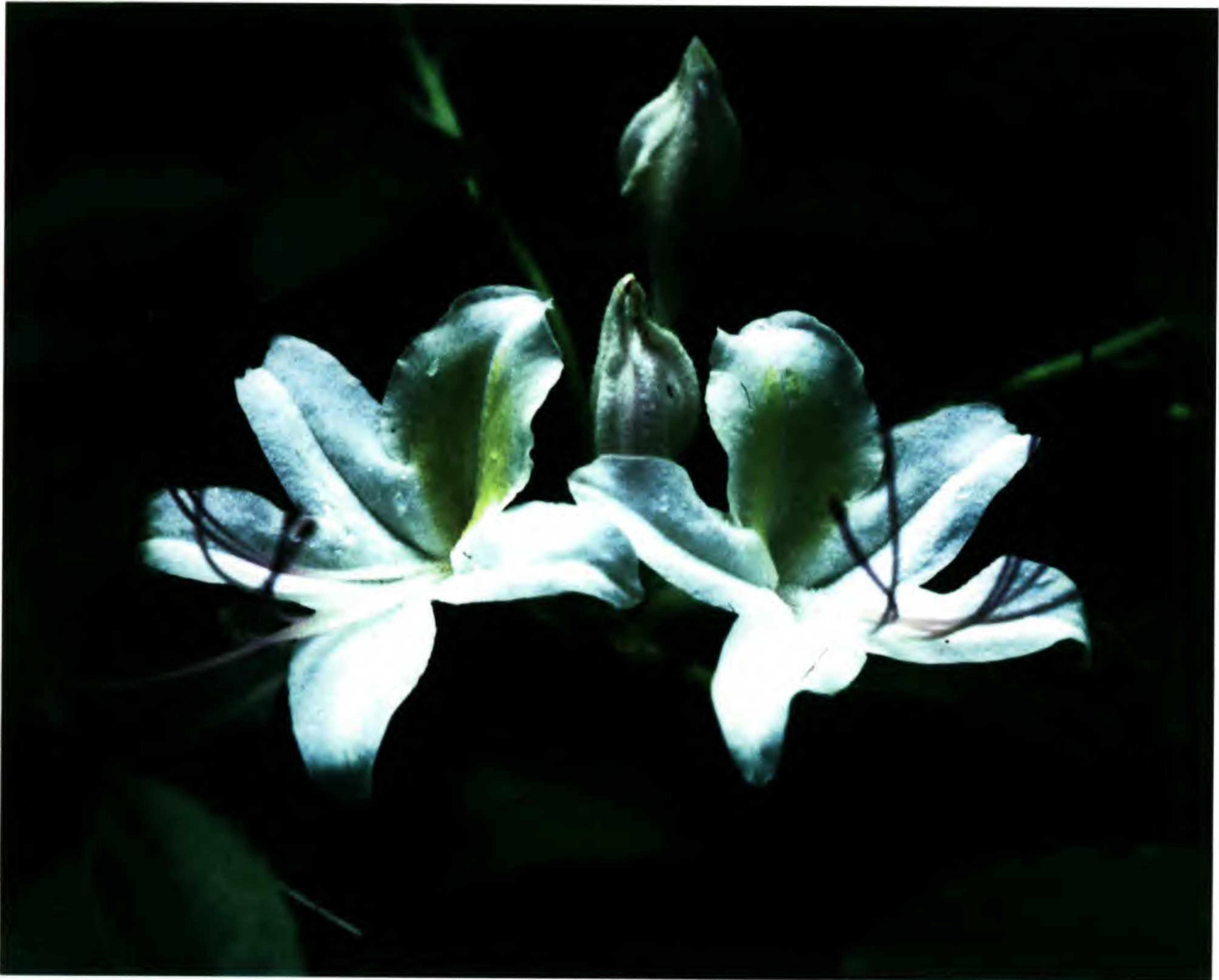


Figure 1. *Rhododendron eastmanii* Kron & Creel. Photograph by M. Creel.

yond the throat of corolla. Style (3.7–)5.4–6.5 cm long, exserted (1.6–)2.5–4.2 cm beyond the throat of corolla, with dense unicellular hairs on the proximal 0.4–2.0 cm; stigma 0.15–0.25 cm wide. Ovary 0.25–0.35 cm long, 0.15–0.20 cm wide at the base, densely covered with unicellular and multicellular eglandular hairs. Capsules 1.2–1.9 cm long, 0.4–0.8 cm wide at base, sparsely to densely covered with unicellular hairs and multicellular eglandular hairs. Seeds pale to dark chestnut brown, elliptic to fusiform, 2.5–4.0 mm long; testa expanded and dorsiventrally flattened, surrounding the body, the cells elongate with transverse end-walls.

Etymology. The specific epithet honors Charles Eastman of Columbia, South Carolina, who first discovered this species while bird-watching in Santee State Park.

Distribution and ecology. Orangeburg and Richland counties, South Carolina. On north-facing slopes with well-drained, nearly neutral soils, often near limestone. Associated species: *Rhododendron canescens* (Michaux) Sweet, *R. periclymenoides* (Michaux) Shinnery, *Stewartia malacodendron* L., *Styrax grandifolia* Aiton, *Oxydendrum arboreum* (L.) DC., *Kalmia latifolia* L., *Fagus grandifolia* Ehr-

hart, *Quercus* spp., *Liriodendron tulipifera* L., and *Symplocos tinctoria* (L.) L'Héritier. Flowering in early May.

Rhododendron eastmanii is similar in general appearance to *R. occidentale* (Torrey & A. Gray) A. Gray, from which it can be distinguished by its lack of glandular hairs on the leaves and petioles (Fig. 2; Kron, 1993). *Rhododendron eastmanii* is geographically isolated from *R. occidentale*, which occurs from southern California to southern Oregon. Further investigation of the potential relationships of *R. eastmanii* and *R. occidentale* would be an interesting evolutionary study. Among the other white-flowered azaleas of the southeastern United States (i.e., *R. alabamense* Rehder, *R. arborescens* (Pursh) Torrey, *R. atlanticum* (Ashe) Rehder, and *R. viscosum* (L.) Torrey), *Rhododendron eastmanii* can be distinguished from *R. alabamense* by the flowers opening after the leaves have expanded, and from *R. arborescens*, *R. atlanticum*, and *R. viscosum* by the presence of a yellow blotch on the upper corolla lobe (Fig. 1, Table 1). In addition, the densely hairy young twigs found in plants of *R. eastmanii* are lacking in *R. arborescens*. The weakly glandular corolla of *R. eastmanii* is also different

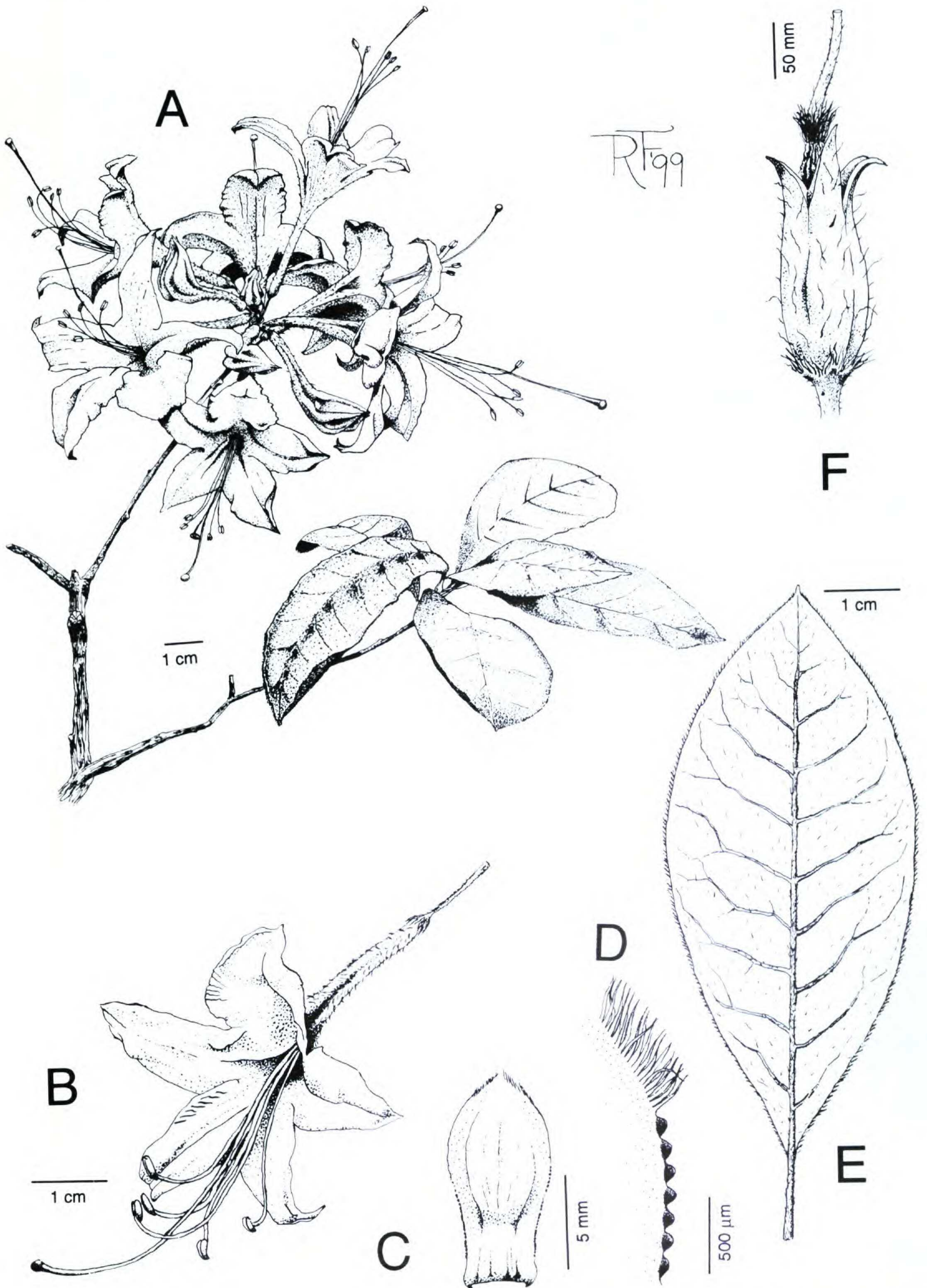


Figure 2. A–F. *Rhododendron eastmanii* (Kron 3023). —A. Flowering branch. —B. Flower. —C. Inflorescence bud scale. —D. Close-up of inflorescence bud-scale margin showing glands along lower $\frac{2}{3}$. —E. Leaf. —F. Capsule.

Table 1. Distinguishing features of the white-flowered species of *Rhododendron* sect. *Pentanthera*.

Species	Time of flowering relative to leaf expansion	Inflorescence bud scale margin	Yellow blotch on upper corolla lobe	Glandular hairs on leaf margins and petiole
<i>R. eastmanii</i>	after	glandular	present	absent
<i>R. alabamense</i>	before	non-glandular	present	absent
<i>R. arborescens</i>	after	non-glandular	absent	absent
<i>R. atlanticum</i>	before	non-glandular	absent	absent
<i>R. occidentale</i>	variable	variable	present	present
<i>R. viscosum</i>	after	variable	absent	absent

from the very sticky, glandular corolla of *R. viscosum* and *R. atlanticum* (Kron, 1993).

Reports of *R. alabamense* from South Carolina (Radford et al., 1981) may actually refer to *R. eastmanii*. A specimen (i.e., Ahles 25522, NCU) identified as *R. alabamense* was seen by the authors. It lacks corolla color information, but in other respects fits *R. eastmanii*. This specimen also has fully expanded leaves at the time of flowering—a characteristic of *R. eastmanii* but not *R. alabamense*. The authors and other field botanists have noted that *R. eastmanii* flowers when no other native azaleas in the area flower, thus potentially suggesting the reproductive isolation of this species from other native azaleas.

Preliminary cladistic analysis of morphological characters (Kron, 1993) for species within *Rhododendron* sect. *Pentanthera* place *R. eastmanii* as closely related to *R. calendulaceum* (Michaux) Torrey and *R. cumberlandense* E. Braun. Although the latter two species possess orange to red corollas, all three share the character of glandular inflorescence bud scales (Fig. 2). Further, more detailed study is necessary to confirm this relationship.

The discovery of a new species of deciduous aza-

lea in South Carolina is unexpected and significant. Although the site of the holotype is within Santee State Park, the only other known population is presently threatened by urban development (Richland Co.). To discourage inappropriate collection by azalea enthusiasts, MC has developed a collection of rooted cuttings that will be made available to the public in the near future.

Paratypes. U.S.A. **South Carolina:** Richland Co., 1 May 1997 Pittman 05109701 (USCH). Orangeburg Co., Santee State Park, 17 May 1993, Kron 3021, 3022 (WFU).

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Literature Cited

- Davis, J. I. & K. C. Nixon. 1992. Populations, genetic variation, and the delimitation of phylogenetic species. *Syst. Biol.* 41: 421–435.
- Kron, K. A. 1993. A revision of *Rhododendron* section *Pentanthera*. *Edinburgh J. Bot.* 50: 249–364.
- Radford, A. E., H. E. Ahles & C. R. Bell. 1981. *Manual of the Vascular Flora of the Carolinas*. Univ. North Carolina Press, Chapel Hill.